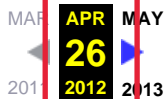


# EXHIBIT 1



239 captures

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## Barracuda Desktop Hard Drive

Barracuda Data Sheet (455 KB)

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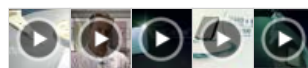
CONFIGURE & BUY

## The Power of One.

The Barracuda® hard drive gives you one hard drive platform for every desktop storage application. One drive with trusted performance, reliability, simplicity and capacity.

- 1TB/disk 7200 RPM platform provides affordable capacity up to 3TB
- Seagate OptiCache™ technology improves performance by up to 45%
- Seagate AcuTrac™ technology enables reliable read/write performance even in high touch operating environments
- Seagate SmartAlign™ technology for no-hassle transition to Advanced Format 4K sector technology
- Free DiscWizard™ software enables 3TB drive use on legacy PC BIOS as well as Windows XP-based systems

Compare all models



### Standard Model

GENERATION : 7200.14

PACKAGE : Drive Only

CAPACITY : 3TB

SPINDLE SPEED (RPM) : 7200

CACHE (MB) : 64

CUSTOMIZE

Model Number: ST3000DM001

Buy from Seagate Online

ST3000DM001

Not available

Qty:

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### PERFECT WHEN YOU NEED TO:

- Build desktop or all-in-one PCs Equip home servers
- Create PC-based gaming systems
- Implement a desktop RAID
- Outfit direct attached external storage devices (DAS)
- Build network attached storage devices (NAS)

### WHAT DO YOU GET?

- Barracuda® desktop hard drive
- Free DiscWizard™ software
- Interface cable, power adapter, mounting screws, and CD with software and manual\*
- Quick installation guide\*

## Barracuda hard drives give you what you want.

Count on Barracuda drives to deliver the storage innovations that drive your costs down and your performance up.

- 7200 RPM performance—from 250GB all the way up to 3TB
- OptiCache™ technology further exploits big 64MB cache sizes and improved micro processor capabilities
- SATA 6Gb/s technology to further maximize performance

More Barracuda drive features



## Your no-hassle transition to 4K sectors.

Are you worried about moving to Advanced Format 4K sector technology? You don't have to be with Barracuda drives. Seagate SmartAlign™ technology makes this

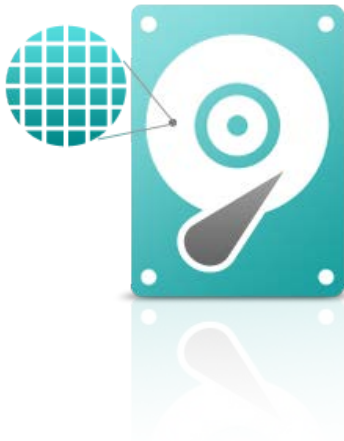
transition a snap:

- No utilities to run
- No extra integration steps to take up your time

[More Barracuda Features](#) ▶



\*These items included with self-installation kits only.



### Maximizes hard drive storage densities.

Barracuda 1TB-per-disk technology incorporates 340,000 unique tracks in the width of a single inch. This incredible storage density drives new capacity possibilities and lowers your total storage costs.

Seagate AcuTrac™ technology enables new storage densities with accurate reading and writing to nano-sized tracks that are only 75 nanometers wide! That’s about 500 times smaller than the period at the end of this sentence.

Buzz

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Recent Blog Posts

*The period at the end of a sentence is 1,000,000 nanometers wide.* | [Read Post](#) ▶

November 09, 2011  
[The Storage Effect](#) - Seagate Corporate

*Seagate Barracuda: What the experts are saying...so far* | [Read Post](#) ▶

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[Storage Means Business](#) - Seagate SMB

*The “Secret” of Barracuda Green’s performance (read the review)* | [Read Post](#) ▶

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November 16, 2010  
[The Storage Effect](#) - Seagate Corporate

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# **EXHIBIT 2**

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Barracuda Desktop Hard Drive

Barracuda Data Sheet (455 KB)

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# Specifications

RESOURCES

Barracuda Data Sheet (455 KB)



Generation	7200.14									
Capacity	3TB	2TB	1.5TB	1TB	750GB	500GB	320GB	250GB	1TB	750G
Form Factor	3.5"	3.5"	3.5"	3.5"	3.5"	3.5"	3.5"	3.5"	3.5"	3.5"
Interface Options	SATA 6Gb/s	SATA 6Gb/s	SATA 6Gb/s	SATA 6Gb/s	SATA 6Gb/s	SATA 6Gb/s	SATA 6Gb/s	SATA 6Gb/s	SATA 6Gb/s, SATA 3Gb/s	SATA SATA
Performance										
Spindle Speed (RPM)	7200	7200	7200	7200	7200	7200	7200	7200	7200	7200
Cache (MB)	64	64	64	64	64	16	16	16	32	32
Transfer Rate,	600	600	600	600	600	600	600	600		

[+] Feedback

Max Ext (MB/s)										
Sustained Data Rate OD	210MB/s	210MB/s	210MB/s	210MB/s	210MB/s	125MB/s	125MB/s	125MB/s		
Average Latency (ms)	4.16	4.16	4.16	4.16	4.16	4.16	4.16	4.16	4.16	4.16
Reliability/Data Integrity										
Nonrecoverable Read Errors per Bits Read	1 in 10 <sup>14</sup>	1 in 10 <sup>14</sup>	1 in 10 <sup>14</sup>	1 in 10 <sup>14</sup>	1 in 10 <sup>14</sup>	1 in 10 <sup>14</sup>	1 in 10 <sup>14</sup>	1 in 10 <sup>14</sup>		
Annualized Failure Rate (AFR)	<1%	<1%	<1%	<1%	<1%	<1%	<1%	<1%	0.34%	0.34%
Power Management										
Seek, Typical Operating (W)										
Idle, Typical Operating (W)						4.60	4.60	4.60		
Environmental										
Temperature										
Operating	0° to 60°C	0° to 60°C	0° to 60°C	0° to 60°C	0° to 60°C	0° to 60°C	0° to 60°C	0° to 60°C		
Non-operating	-40° to 70°C	-40° to 70°C	-40° to 70°C	-40° to 70°C	-40° to 70°C	-40° to 70°C	-40° to 70°C	-40° to 70°C		
Shock										
Operating: Gs (ms)	80 (2ms)	80 (2ms)	80 (2ms)	80 (2ms)	80 (2ms)	70 (2ms)	70 (2ms)	70 (2ms)		
Non-operating: Gs (ms)	300 (2ms)	300 (2ms)	300 (2ms)	300 (2ms)	300 (2ms)	350 (2ms)	350 (2ms)	350 (2ms)		
Acoustics (bels - sound power)										
Idle	2.4	2.4	2.4	2.4	2.2	2.6	2.6	2.6		
Operating	2.6	2.6	2.6	2.6	2.3	2.8	2.8	2.8		
Physical										
Height (in/mm)	1.028/26.1	1.028/26.1	1.028/26.1	0.7825/20.17	0.7825/20.17	0.787/19.98	0.787/19.98	0.787/19.98	1.028/26.1	1.028/
Width (in/mm)	4.0/101.6	4.0/101.6	4.0/101.6	4.0/101.6	4.0/101.6	4.0/101.6	4.0/101.6	4.0/101.6	4.000/101.6	4.000/
Length (in/mm)	5.787/146.99	5.787/146.99	5.787/146.99	5.787/146.99	5.787/146.99	5.787/146.99	5.787/146.99	5.787/146.99	5.787/146.99	5.787/
Height (in/mm) (maximum)										
Width (in/mm)										

(maximum)											
Length (in/mm) (maximum)											
Weight (lb/g)	1.38/626	1.371/622	1.18/535	0.915/415	0.88/400	0.915/415	0.915/415	0.915/415	1.371/622	1.371/622	1.371/622

Model Number	Generation	Package	Capacity	Interface	Spindle Speed (RPM)	Cache (MB)	Areal Density	Length	Width	Height	Typical Weight	AFR	Operating Temperature	Average Operating Power
ST3000DM001	7200.14	Drive Only	3TB	SATA 6Gb/s	7200RPM	64MB	625	146.99mm	101.6mm	26.1mm	626g	<1%	60°C	8.0W
ST2000DM001	7200.14	Drive Only	2TB	SATA 6Gb/s	7200RPM	64MB	625 Gfc/in^2	146.99mm	101.6mm	26.1mm	622g	<1%	60°C	8.0W
ST1500DM003	7200.14	Drive Only	1.5TB	SATA 6Gb/s	7200RPM	64MB	625	146.99mm	101.6mm	26.1mm	535g	<1%	60°C	6.7W
ST1000DM003	7200.14	Drive Only	1TB	SATA 6Gb/s	7200RPM	64MB	625 Gfc/in^2	146.99mm	101.6mm	20.17mm	415g	<1%	60°C	6.19W
ST750DM003	7200.14	Drive Only	750GB	SATA 6Gb/s	7200RPM	64MB	625 Gfc/in^2	146.99mm	101.6mm	20.17mm	400g	<1%	60°C	5.90W
ST500DM002	7200.14	Drive Only	500GB	SATA 6Gb/s	7200RPM	16MB	329 Gfc/in^2	146.99mm	101.6mm	19.98mm	415g	<1%	60°C	6.19W
ST320DM000	7200.14	Drive Only	320GB	SATA 6Gb/s	7200RPM	16MB	329 Gfc/in^2	146.99mm	101.6mm	19.98mm	415g	<1%	60°C	6.19W
ST250DM000	7200.14	Drive Only	250GB	SATA 6Gb/s	7200RPM	16MB	329 Gfc/in^2	146.99mm	101.6mm	19.98mm	415g	<1%	60°C	6.19W
ST31000528AS	7200.12	Drive Only	1TB	SATA 3Gb/s	7200RPM	32MB	329	146.99mm	101.6mm	26.1mm	622g			
ST31000524AS	7200.12	Drive Only	1TB	SATA 6Gb/s	7200RPM	32MB	329	146.99mm	101.6mm	26.1mm	622g	0.34%		
ST3750528AS	7200.12	Drive Only	750GB	SATA 3Gb/s	7200RPM	32MB	329	146.99mm	101.6mm	26.1mm	622g			
ST3750525AS	7200.12	Drive Only	750GB	SATA 6Gb/s	7200RPM	32MB	329	146.99mm	101.6mm	26.1mm	622g	0.34%		
ST3500418AS	7200.12	Drive Only	500GB	SATA	7200RPM	16MB	329	146.99mm	101.6mm	19.98mm	415g			



# EXHIBIT 3

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Barracuda Desktop Hard Drive

Barracuda Data Sheet (455 KB)

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# Specifications

## RESOURCES

- [Barracuda Data Sheet \(455 KB\)](#)
- [Barracuda SATA Product Manual \(304 KB\)](#)



Generation	7200.14									
Capacity	3TB	2TB	1.5TB	1TB	750GB	500GB	320GB	250GB	1TB	750G
Show me : <a href="#">What's Different</a>   <a href="#">What's the Same</a>										
Form Factor	3.5"	3.5"	3.5"	3.5"	3.5"	3.5"	3.5"	3.5"	3.5"	3.5"
Interface Options	SATA 6Gb/s	SATA 6Gb/s	SATA 6Gb/s	SATA 6Gb/s	SATA 6Gb/s	SATA 6Gb/s	SATA 6Gb/s	SATA 6Gb/s	SATA 6Gb/s	SATA
Performance										
Spindle Speed (RPM)	7200	7200	7200	7200	7200	7200	7200	7200	7200	7200
Cache (MB)	64	64	64	64	64	16	16	16	32	32
Transfer Rate, Max Ext (MB/s)	600	600	600	600	600	600	600	600		

Sustained Data Rate OD	210MB/s	210MB/s	210MB/s	210MB/s	210MB/s	125MB/s	125MB/s	125MB/s		
Average Latency (ms)	4.16	4.16	4.16	4.16	4.16	4.16	4.16	4.16	4.16	4.16
<b>Reliability/Data Integrity</b>										
Nonrecoverable Read Errors per Bits Read	1 in 10 <sup>14</sup>	1 in 10 <sup>14</sup>	1 in 10 <sup>14</sup>	1 in 10 <sup>14</sup>	1 in 10 <sup>14</sup>	1 in 10 <sup>14</sup>	1 in 10 <sup>14</sup>	1 in 10 <sup>14</sup>		
Annualized Failure Rate (AFR)			<1%		<1%	<1%	<1%	<1%		0.34%
<b>Power Management</b>										
Idle, Typical Operating (W)	5.80	5.80		4.0		4.60	4.60	4.60	4.0	
<b>Environmental</b>										
Temperature										
Operating	0° to 60°C	0° to 60°C	0° to 60°C	0° to 60°C	0° to 60°C	0° to 60°C	0° to 60°C	0° to 60°C		
Non-operating	-40° to 70°C	-40° to 70°C	-40° to 70°C	-40° to 70°C	-40° to 70°C	-40° to 70°C	-40° to 70°C	-40° to 70°C		
Shock										
Operating: Gs (ms)	80 (2ms)	80 (2ms)	80 (2ms)	80 (2ms)	80 (2ms)	70 (2ms)	70 (2ms)	70 (2ms)		
Non-operating: Gs (ms)	300 (2ms)	300 (2ms)	300 (2ms)	300 (2ms)	300 (2ms)	350 (2ms)	350 (2ms)	350 (2ms)		
Acoustics (bels - sound power)										
Idle	2.4	2.4	2.4	2.4	2.2	2.6	2.6	2.6		
Operating	2.6	2.6	2.6	2.6	2.3	2.8	2.8	2.8		
<b>Physical</b>										
Height (in/mm)	1.028/26.1	1.028/26.1	1.028/26.1	0.7825/20.17	0.7825/20.17	0.787/19.98	0.787/19.98	0.787/19.98	1.028/26.1	1.028/26.1
Width (in/mm)	4.0/101.6	4.0/101.6	4.0/101.6	4.0/101.6	4.0/101.6	4.0/101.6	4.0/101.6	4.0/101.6	4.000/101.6	4.000/101.6
Length (in/mm)	5.787/146.99	5.787/146.99	5.787/146.99	5.787/146.99	5.787/146.99	5.787/146.99	5.787/146.99	5.787/146.99	5.787/146.99	5.787/146.99
Weight (lb/g)	1.38/626	1.371/622	1.18/535	0.915/415	0.88/400	0.915/415	0.915/415	0.915/415	1.371/622	1.371/622

				Spindle Speed	Cache	Areal				Typical		Operating	Average Operating
--	--	--	--	---------------	-------	-------	--	--	--	---------	--	-----------	-------------------

Model Number	Generation	Package	Capacity	Interface	(RPM)	(MB)	Density	Length	Width	Height	Weight	AFR	Temperature	Power
ST3000DM001	7200.14	Drive Only	3TB	SATA 6Gb/s	7200RPM	64MB	625	146.99mm	101.6mm	26.1mm	626g		60°C	8.0W
ST2000DM001	7200.14	Drive Only	2TB	SATA 6Gb/s	7200RPM	64MB	625 Gfc/in^2	146.99mm	101.6mm	26.1mm	622g		60°C	8.0W
ST1500DM003	7200.14	Drive Only	1.5TB	SATA 6Gb/s	7200RPM	64MB	625	146.99mm	101.6mm	26.1mm	535g	<1%	60°C	6.7W
ST1000DM003	7200.14	Drive Only	1TB	SATA 6Gb/s	7200RPM	64MB	625 Gfc/in^2	146.99mm	101.6mm	20.17mm	415g		60°C	6.19W
ST750DM003	7200.14	Drive Only	750GB	SATA 6Gb/s	7200RPM	64MB	625 Gfc/in^2	146.99mm	101.6mm	20.17mm	400g	<1%	60°C	5.90W
ST500DM002	7200.14	Drive Only	500GB	SATA 6Gb/s	7200RPM	16MB	329 Gfc/in^2	146.99mm	101.6mm	19.98mm	415g	<1%	60°C	6.19W
ST320DM000	7200.14	Drive Only	320GB	SATA 6Gb/s	7200RPM	16MB	329 Gfc/in^2	146.99mm	101.6mm	19.98mm	415g	<1%	60°C	6.19W
ST250DM000	7200.14	Drive Only	250GB	SATA 6Gb/s	7200RPM	16MB	329 Gfc/in^2	146.99mm	101.6mm	19.98mm	415g	<1%	60°C	6.19W
ST31000524AS	7200.12	Drive Only	1TB	SATA 6Gb/s	7200RPM	32MB	329	146.99mm	101.6mm	26.1mm	622g			
ST3750525AS	7200.12	Drive Only	750GB	SATA 6Gb/s	7200RPM	32MB	329	146.99mm	101.6mm	26.1mm	622g	0.34%		
ST3500413AS	7200.12	Drive Only	500GB	SATA 6Gb/s	7200RPM	16MB	329	146.99mm	101.6mm	19.98mm	415g	0.34%		
ST3320413AS	7200.12	Drive Only	320GB	SATA 6Gb/s	7200RPM	16MB	329	146.99mm	101.6mm	19.98mm	380g	0.34%		
ST3250312AS	7200.12	Drive Only	250GB	SATA 6Gb/s	7200RPM	8MB	329	146.99mm	101.6mm	19.98mm	415g	0.34%		
ST3160316AS	7200.12	Drive Only	160GB	SATA 6Gb/s	7200RPM	8MB	329	146.99mm	101.6mm	19.98mm	415g	0.34%		
ST320005N4A1AS- RK		Kit	2TB	SATA 3Gb/s	5900RPM	32MB								

STBD2000101		Kit	2TB	SATA 3Gb/s	7200RPM	32MB								
ST315005N4A1AS- RK		Kit	1.5TB	SATA 3Gb/s	5900RPM	32MB								
ST310005N1A1AS- RK		Kit	1TB	SATA 3Gb/s	7200RPM	32MB								
ST3500641AS-RK		Kit	500GB	SATA 3Gb/s	7200RPM	16MB								



# EXHIBIT 4

WayBackMachine <http://www.seagate.com/internal-hard-drives/desktop-hard-drives/barracuda/> Go NOV DEC JAN 09 2012 2013 239 captures 26 Apr 2012 - 5 Sep 2018

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## Barracuda Desktop Hard Drive

Barracuda Data Sheet (455 KB)

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## Specifications

### RESOURCES

[Barracuda Data Sheet \(455 KB\)](#)

[Barracuda SATA Product Manual \(304 KB\)](#)



Generation	7200.14									
Capacity	3TB	2TB	1.5TB	1TB	750GB	500GB	320GB	250GB	1TB	750GB
Show me : <a href="#">What's Different</a> <a href="#">What's the Same</a>										
Form Factor	3.5"	3.5"	3.5"	3.5"	3.5"	3.5"	3.5"	3.5"	3.5"	3.5"
Interface Options	SATA 6Gb/s	SATA 6Gb/s	SATA 6Gb/s	SATA 6Gb/s	SATA 6Gb/s	SATA 6Gb/s	SATA 6Gb/s	SATA 6Gb/s	SATA 6Gb/s	SATA 6Gb/s
Performance										
Spindle Speed (RPM)	7200	7200	7200	7200	7200	7200	7200	7200	7200	7200
Cache (MB)	64	64	64	64	64	16	16	16	32	32
Transfer Rate, Max Ext (MB/s)	600	600	600	600	600	600	600	600		
Sustained Data Rate OD	210MB/s	210MB/s	210MB/s	210MB/s	210MB/s	125MB/s	125MB/s	125MB/s		
Average Latency (ms)	4.16	4.16	4.16	4.16	4.16	4.16	4.16	4.16	4.16	4.16
Reliability/Data Integrity										
Nonrecoverable Read Errors per Bits Read	1 in 10 <sup>14</sup>	1 in 10 <sup>14</sup>	1 in 10 <sup>14</sup>	1 in 10 <sup>14</sup>	1 in 10 <sup>14</sup>	1 in 10 <sup>14</sup>	1 in 10 <sup>14</sup>	1 in 10 <sup>14</sup>		
Annualized Failure Rate (AFR)			<1%		<1%	<1%	<1%	<1%		0.34%
Power Management										
Idle, Typical Operating (W)	5.80	5.80		4.0		4.60	4.60	4.60	4.0	
Environmental										
Temperature										
Operating	0° to 60°C	0° to 60°C	0° to 60°C	0° to 60°C	0° to 60°C	0° to 60°C	0° to 60°C	0° to 60°C		
Non-operating	-40° to 70°C	-40° to 70°C	-40° to 70°C	-40° to 70°C	-40° to 70°C	-40° to 70°C	-40° to 70°C	-40° to 70°C		
Shock										
Operating: Gs (ms)	80 (2ms)	80 (2ms)	80 (2ms)	80 (2ms)	80 (2ms)	70 (2ms)	70 (2ms)	70 (2ms)		
	300 (2ms)	300 (2ms)	300 (2ms)	300 (2ms)	300 (2ms)	350 (2ms)	350 (2ms)	350 (2ms)		

WayBackMachine <http://www.seagate.com/internal-hard-drives/desktop-hard-drives/barracuda/200.14> Go NOV DEC JAN 09 2017 2012 2013 1TB 750GB

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Non-operating: Gs (ms)													
Acoustics (bels - sound power)													
Idle	2.4	2.4	2.4	2.4	2.2	2.6	2.6	2.6					
Operating	2.6	2.6	2.6	2.6	2.3	2.8	2.8	2.8					
<b>Physical</b>													
Height (in/mm)	1.028/26.1	1.028/26.1	1.028/26.1	0.7825/20.17	0.7825/20.17	0.787/19.98	0.787/19.98	0.787/19.98	1.028/26.1	1.028/26.1			
Width (in/mm)	4.0/101.6	4.0/101.6	4.0/101.6	4.0/101.6	4.0/101.6	4.0/101.6	4.0/101.6	4.0/101.6	4.000/101.6	4.000/101.6			
Length (in/mm)	5.787/146.99	5.787/146.99	5.787/146.99	5.787/146.99	5.787/146.99	5.787/146.99	5.787/146.99	5.787/146.99	5.787/146.99	5.787/146.99			
Weight (lb/g)	1.38/626	1.371/622	1.18/535	0.915/415	0.88/400	0.915/415	0.915/415	0.915/415	1.371/622	1.371/622			

Model Number	Generation	Package	Capacity	Interface	Spindle Speed (RPM)	Cache (MB)	Areal Density	Length	Width	Height	Typical Weight	AFR	Operating Temperature
ST3000DM001	7200.14	Drive Only	3TB	SATA 6Gb/s	7200RPM	64MB	625	146.99mm	101.6mm	26.1mm	626g		60°C
ST2000DM001	7200.14	Drive Only	2TB	SATA 6Gb/s	7200RPM	64MB	625 Gfc/in^2	146.99mm	101.6mm	26.1mm	622g		60°C
ST1500DM003	7200.14	Drive Only	1.5TB	SATA 6Gb/s	7200RPM	64MB	625	146.99mm	101.6mm	26.1mm	535g	<1%	60°C
ST1000DM003	7200.14	Drive Only	1TB	SATA 6Gb/s	7200RPM	64MB	625 Gfc/in^2	146.99mm	101.6mm	20.17mm	415g		60°C
ST750DM003	7200.14	Drive Only	750GB	SATA 6Gb/s	7200RPM	64MB	625 Gfc/in^2	146.99mm	101.6mm	20.17mm	400g	<1%	60°C
ST500DM002	7200.14	Drive Only	500GB	SATA 6Gb/s	7200RPM	16MB	329 Gfc/in^2	146.99mm	101.6mm	19.98mm	415g	<1%	60°C
ST320DM000	7200.14	Drive Only	320GB	SATA 6Gb/s	7200RPM	16MB	329 Gfc/in^2	146.99mm	101.6mm	19.98mm	415g	<1%	60°C
ST250DM000	7200.14	Drive Only	250GB	SATA 6Gb/s	7200RPM	16MB	329 Gfc/in^2	146.99mm	101.6mm	19.98mm	415g	<1%	60°C
ST3100524AS	7200.12	Drive Only	1TB	SATA 6Gb/s	7200RPM	32MB	329	146.99mm	101.6mm	26.1mm	622g		
ST3750525AS	7200.12	Drive Only	750GB	SATA 6Gb/s	7200RPM	32MB	329	146.99mm	101.6mm	26.1mm	622g	0.34%	
ST3500413AS	7200.12	Drive Only	500GB	SATA 6Gb/s	7200RPM	16MB	329	146.99mm	101.6mm	19.98mm	415g	0.34%	
ST3320413AS	7200.12	Drive Only	320GB	SATA 6Gb/s	7200RPM	16MB	329	146.99mm	101.6mm	19.98mm	380g	0.34%	
ST3250312AS	7200.12	Drive Only	250GB	SATA 6Gb/s	7200RPM	8MB	329	146.99mm	101.6mm	19.98mm	415g	0.34%	
ST3160316AS	7200.12	Drive Only	160GB	SATA 6Gb/s	7200RPM	8MB	329	146.99mm	101.6mm	19.98mm	415g	0.34%	
ST32005N4A1AS-RK		Kit	2TB	SATA 3Gb/s	5900RPM	32MB							
STBD2000101		Kit	2TB	SATA 3Gb/s	7200RPM	32MB							



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Model Number	Generation	Package	Capacity	Interface	Spindle Speed (RPM)	Cache (MB)	Areal Density	Length	Width	Height	Typical Weight	AFR	Operation
ST310005N1A1AS-RK		Kit	1TB	SATA	7200RPM	32MB							
ST310005N1A1AS-RK		Kit	1TB	SATA	7200RPM	32MB							
ST3500641AS-RK		Kit	500GB	SATA	7200RPM	16MB							

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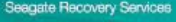
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Seagate® desktop hard drives deliver optimal performance for every desktop computing need—from entry-level workstations to high-performance gaming systems. These desktop drives offer innovative technologies, super-sized capacities, low power consumption and blazing fast performance.

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 Laptop, Desktop and Video Storage Drive Guide - November 2012 (141KB)

PRODUCT NAME	HEIGHT	AREAL DENSITY	ENCRYPTION	MEAN TIME BETWEEN FAILURES	AVERAGE OPERATING POWER
<b>Desktop HDD</b> <a href="#">LEARN MORE &gt;</a>  Desktop HDD Data Sheet (444KB)	12.7mm, 19.98mm, 20.17mm, 26.11mm, 26.1mm	329 Gfc/in <sup>4</sup> 2Gb/in <sup>2</sup> , 329Gb/in <sup>2</sup> , 625 Gfc/in <sup>4</sup> 2Gb/in <sup>2</sup> , 625Gb/in <sup>2</sup>	Security/Encryption, Volume level encryption	750,000hr	6.19W, 7.50W, 8.0W

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<b>Desktop HDD</b> <a href="#">LEARN MORE &gt;</a>  Desktop HDD Data Sheet (444KB)	12.7mm, 19.98mm, 20.17mm, 26.11mm, 26.1mm	329 Gfc/in <sup>4</sup> 2Gb/in <sup>2</sup> , 329Gb/in <sup>2</sup> , 625 Gfc/in <sup>4</sup> 2Gb/in <sup>2</sup> , 625Gb/in <sup>2</sup>	Security/Encryption, Volume level encryption	750,000hr	6.19W, 7.50W, 8.0W
<b>Desktop SSHD</b> <a href="#">LEARN MORE &gt;</a>					

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PRODUCT NAME	HEIGHT	AREAL DENSITY	ENCRYPTION	MEAN TIME BETWEEN FAILURES	AVERAGE OPERATING POWER
<b>Desktop HDD</b> <a href="#">LEARN MORE &gt;</a>  <a href="#">Desktop HDD Data Sheet (444KB)</a>	19.98mm, 20.17mm, 26.11mm, 26.1mm	329 Gfc/in <sup>2</sup> 2Gb/in <sup>2</sup> , 329Gb/in <sup>2</sup> , 625 Gfc/in <sup>2</sup> 2Gb/in <sup>2</sup> , 625Gb/in <sup>2</sup>	Security/Encryption, Volume level encryption	750,000hr	6.19W, 7.50W, 8.0W
<b>Desktop SSHD</b> <a href="#">LEARN MORE &gt;</a>					

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[Laptop, Desktop and Video Storage Drive Guide - April 2013 \(149KB\)](#)

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PRODUCT NAME	AREAL DENSITY	ENCRYPTION	AFR	MEAN TIME BETWEEN FAILURES	AVERAGE OPERATING POWER
<b>Desktop HDD</b> <a href="#">LEARN MORE &gt;</a> <a href="#">Desktop HDD Data Sheet (444KB)</a>	329 Gfc/in <sup>2</sup> 2Gb/in <sup>2</sup> , 329Gb/in <sup>2</sup> , 625 Gfc/in <sup>2</sup> 2Gb/in <sup>2</sup> , 625Gb/in <sup>2</sup>	Security/Encryption, Volume level encryption		750,000hr	6.19W, 7.50W, 8.0W
<b>Desktop SSHD</b> <a href="#">LEARN MORE &gt;</a> <a href="#">Desktop SSHD Data Sheet (395KB)</a>			<1%		5.9W, 6.7W

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 Laptop, Desktop and Video Storage Drive Guide - April 2013 (150KB)

PRODUCT NAME	AREAL DENSITY	ENCRYPTION	AFR	MEAN TIME BETWEEN FAILURES	AVERAGE OPERATING POWER
<b>Desktop HDD</b> <a href="#">LEARN MORE &gt;</a>  Desktop HDD Data Sheet (444KB)	329 Gfc/in <sup>2</sup> 2Gb/in <sup>2</sup> , 329Gb/in <sup>2</sup> , 625 Gfc/in <sup>2</sup> 2Gb/in <sup>2</sup> , 625Gb/in <sup>2</sup>	Security/Encryption, Volume level encryption		750,000hr	6.19W, 7.50W, 8.0W
<b>Desktop SSHD</b> <a href="#">LEARN MORE &gt;</a>  Desktop SSHD Data Sheet (395KB)			<1%		5.9W, 6.7W

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PRODUCT NAME	AREAL DENSITY	ENCRYPTION	AFR	MEAN TIME BETWEEN FAILURES	AVERAGE OPERATING POWER
<b>Desktop HDD</b> <a href="#">LEARN MORE &gt;</a> Desktop HDD Data Sheet (444KB)	329 Gfc/in <sup>2</sup> 2Gb/in <sup>2</sup> , 329Gb/in <sup>2</sup> , 625 Gfc/in <sup>2</sup> 2Gb/in <sup>2</sup> , 625Gb/in <sup>2</sup>	Security/Encryption, Volume level encryption		750,000hr	6.19W, 7.50W, 8.0W
<b>Desktop SSHD</b> <a href="#">LEARN MORE &gt;</a> Desktop SSHD Data Sheet (395KB)			<1%		5.9W, 6.7W

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# The Power of One.

The Seagate® Desktop HDD is the one hard drive for all your desktop applications. One drive for every need, supported by 30 years of trusted performance, reliability and simplicity.

- HDDs that bring your costs down and crank your storage up
- No-hassle transition to 3TB and 4TB drives
- Seagate AcuTrac™ technology maximizes HDD storage densities

[Compare all models](#)

Mac | Windows | Linux



Model Number: STBD4000400

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## Seagate Desktop HDD: get what you want.

Count on Seagate to deliver the storage innovations that bring your costs down and crank your storage up.

- Industry's first 1TB-per-disk hard drive technology
- OptiCache™ technology exploits big 64MB cache sizes and improves microprocessor capabilities
- Seagate OptiCache™ technology improves performance by up to 45% over the previous generation
- SATA 6Gb/s technology maximizes performance
- Seagate AcuTrac™ technology enables reliable read/write performance even in high-touch operating environments
- Free DiscWizard™ software enables capacities beyond 2TB on legacy PC BIOS and Windows XP-based systems

[More Seagate Desktop HDD features](#)

## Your no-hassle transition beyond 2TB.

Are you worried about moving beyond 2TB? You don't have to. The Seagate [DiscWizard™](#) utility makes this transition a

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snap:

- Free software enables Windows machines to utilize drives beyond 2TB
- Seagate [DiscWizard](#) provides you a means to effectively utilize your 3TB and 4TB hard drives.

[More Seagate Desktop HDD Features](#) »



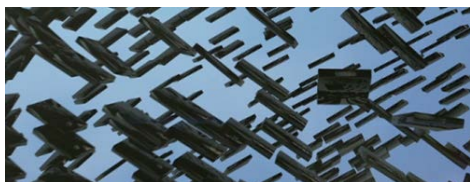
## Maximize hard drive storage densities.

Seagate Desktop HDD, 1TB-per-disk technology incorporates 340,000 unique tracks in the width of a single inch. This incredible storage density drives new capacity possibilities and lowers your total storage costs.

Seagate [AcuTrac™](#) technology enables storage densities with accurate reading and writing to nano-sized tracks that are only 75 nanometers wide! That's about 1/500th the size of the period at the end of this sentence.

[Watch AcuTrac Technology Video >](#)

## Do More ▶



### High-Capacity Storage Readiness

Enabling key elements for hard drive capacities over 2.1TB

[More](#)

## Tech Insight ▶



### Beyond 2TB on the Desktop

Setting up your desktop environment for 3TB drives

[More](#)

- Build a desktop or home server up to 4TB
- Create PC performance gaming systems

### WHAT DO YOU GET?

- Seagate Desktop HDD
- Free [DiscWizard™](#) software
- Interface cable, power adapter, mounting screws, and CD with software and manual\*
- Quick installation guide\*

\*These items included with self-installation kits only.

### RELATED PRODUCTS



#### Enterprise Value HDD

Low-power cloud storage, NAS and DAS with Instant Secure Erase (ISE).



#### Video 3.5 HDD

Seagate Video HDDs deliver reliable 24x7 operation— DVR storage optimized for low-power consumption, quiet operation, smooth video streaming, high reliability and high HDD DVR capacity.



#### SV35 Series Hard Drive

Cost-effective 1TB, 2TB, 3TB Surveillance HDD capacities.

### RESOURCES

[Desktop HDD Kit Data Sheet](#)

[Desktop HDD Product Overview](#)

[Desktop HDD Data Sheet](#)

[7200-RPM Drive Selection Guide](#)

[7200-RPM Drive Specification Comparison](#)

[Storage Solutions Guide](#)

[Seagate® \[AcuTrac™\]\(#\) Technology Defines New Standards](#)

[Evolution to the SATA 6Gb/s Storage Interface](#)

[DiscWizard™ download information](#)

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Desktop HDD Data Sheet (444 KB)

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# Specifications

RESOURCES

- Desktop HDD Kit Data Sheet (440 KB)
- Desktop HDD Data Sheet (444 KB)
- Desktop HDD Product Manual (248 KB)



Generation	Desktop HDD.15	7200.14								
Capacity	4TB	3TB	2TB	1TB	500GB	320GB	250GB	1.5TB	1TB	750G
	Show me : <a href="#">What's Different</a>   <a href="#">What's the Same</a>									
Form Factor	3.5"	3.5"	3.5"	3.5"	3.5"	3.5"	3.5"	3.5"	3.5"	3.5"
Interface	SATA 6Gb/s	SATA 6Gb/s	SATA 3Gb/s,	SATA 6Gb/s,	SATA 3Gb/s,	SATA 6Gb/s	SATA 6Gb/s	SATA 3Gb/s	SATA 6Gb/s	SATA

Options			SATA 6Gb/s	SATA 3Gb/s	SATA 6Gb/s					
Performance										
Cache (MB)	64	64	64	64, 32	16	16	16	32	32	32
Transfer Rate, Max Ext (MB/s)	600	600	600	600	600	600	600			
Sustained Data Rate OD	180	210MB/s	210MB/s	210MB/s	125MB/s	125MB/s	125MB/s			
Average Latency (ms)	5.10	4.16	4.16	4.16	4.16	4.16	4.16		4.16	4.16
Power Management										
Idle, Typical Operating (W)	5.0	5.80	5.80	4.0, 4.5	4.60	4.60	4.60		4.0	
Environmental										
Temperature										
Operating	0° to 60°C	0° to 60°C	0° to 60°C	0° to 60°C	0° to 60°C	0° to 60°C	0° to 60°C			
Non-operating	-40° to 70°C	-40° to 70°C	-40° to 70°C	-40° to 70°C	-40° to 70°C	-40° to 70°C	-40° to 70°C			
Shock										
Operating: Gs (ms)	80 (10ms)	80 (2ms)	80 (2ms)	80 (2ms)	70 (2ms)	70 (2ms)	70 (2ms)			
Non-operating: Gs (ms)	300 (2ms)	300 (2ms)	300 (2ms)	300 (2ms)	350 (2ms)	350 (2ms)	350 (2ms)			
Acoustics (bels - sound power)										
Idle	2.3	2.4	2.4	2.4	2.6	2.6	2.6			
Operating	2.8	2.6	2.6	2.6	2.8	2.8	2.8			
Physical										
Height (in/mm)	1.028/26.11	1.028/26.1	1.028/26.1	0.7825/20.17	0.787/19.98	0.787/19.98	0.787/19.98		1.028/26.1	1.028/
Width (in/mm)	4.0/101.6	4.0/101.6	4.0/101.6	4.0/101.6	4.0/101.6	4.0/101.6	4.0/101.6		4.000/101.6	4.000/
Length (in/mm)	5.787/146.99, 5.75/146.05	5.75/146.05, 5.787/146.99	5.75/146.05, 5.787/146.99	5.787/146.99	5.787/146.99	5.787/146.99	5.787/146.99		5.787/146.99	5.787/

Height (in/mm) (maximum)				1.028/26.1	1.028/26.1			1.028/26.1		
Width (in/mm) (maximum)				4.010/101.85	4.010/101.85			4.010/101.85		
Length (in/mm) (maximum)				5.787/146.99	5.787/146.99			5.787/146.99		
Weight (lb/g)	1.345/610, 0.90/408	0.90/408, 1.38/626	0.90/408, 1.371/622	0.915/415	0.915/415	0.915/415	0.915/415		1.371/622	1.371/

Model Number												
	Generation	Package	Capacity	Interface	Cache (MB)	Areal Density	Length	Width	Height	Typical Weight	Operating Temperature	Average Operating Power
STBD4000400	Desktop HDD.15	Kit	4TB	SATA 6Gb/s	64MB		146.05mm	101.6mm	26.1mm	408g		
ST4000DM000	Desktop HDD.15	Drive Only	4TB	SATA 6Gb/s	64MB	625	146.99mm	101.6mm	26.11mm	610g	60°C	7.50W
STBD3000100	7200.14	Kit	3TB	SATA 6Gb/s	64MB		146.05mm	101.6mm	26.1mm	408g	60°C	8.0W
STBD2000101	7200.14	Kit	2TB	SATA 3Gb/s	64MB		146.05mm	101.6mm	26.1mm	408g		
ST310005N1A1AS-RK	7200.14	Kit	1TB	SATA 3Gb/s	32MB							
ST3500641AS-RK	7200.14	Kit	500GB	SATA 3Gb/s	16MB							
ST315005N4A1AS-RK	7200.14	Kit	1.5TB	SATA 3Gb/s	32MB							
ST3000DM001	7200.14	Drive Only	3TB	SATA 6Gb/s	64MB	625	146.99mm	101.6mm	26.1mm	626g	60°C	8.0W
ST2000DM001	7200.14	Drive Only	2TB	SATA 6Gb/s	64MB	625 Gfc/in^2	146.99mm	101.6mm	26.1mm	622g	60°C	8.0W

ST1000DM003	7200.14	Drive Only	1TB	SATA 6Gb/s	64MB	625 Gfc/in^2	146.99mm	101.6mm	20.17mm	415g	60°C	6.19W
ST500DM002	7200.14	Drive Only	500GB	SATA 6Gb/s	16MB	329 Gfc/in^2	146.99mm	101.6mm	19.98mm	415g	60°C	6.19W
ST320DM000	7200.14	Drive Only	320GB	SATA 6Gb/s	16MB	329 Gfc/in^2	146.99mm	101.6mm	19.98mm	415g	60°C	6.19W
ST250DM000	7200.14	Drive Only	250GB	SATA 6Gb/s	16MB	329 Gfc/in^2	146.99mm	101.6mm	19.98mm	415g	60°C	6.19W
ST31000524AS	7200.12	Drive Only	1TB	SATA 6Gb/s	32MB	329	146.99mm	101.6mm	26.1mm	622g		
ST3750525AS	7200.12	Drive Only	750GB	SATA 6Gb/s	32MB	329	146.99mm	101.6mm	26.1mm	622g		
ST3500413AS	7200.12	Drive Only	500GB	SATA 6Gb/s	16MB	329	146.99mm	101.6mm	19.98mm	415g		
ST3320413AS	7200.12	Drive Only	320GB	SATA 6Gb/s	16MB	329	146.99mm	101.6mm	19.98mm	380g		
ST3250312AS	7200.12	Drive Only	250GB	SATA 6Gb/s	8MB	329	146.99mm	101.6mm	19.98mm	415g		
ST3160316AS	7200.12	Drive Only	160GB	SATA 6Gb/s	8MB	329	146.99mm	101.6mm	19.98mm	415g		





# EXHIBIT 8



# Desktop HDD

## Data Sheet

### The Power of One

- Seagate brings over 30 years of trusted performance and reliability to the new Seagate® Desktop HDDs—now available in capacities up to 4TB.
- Double your capacity and drive down costs with up to 1TB-per-disk hard drive technology.
- SATA 6Gb/s interface optimizes burst performance
- Seagate AcuTrac™ servo technology delivers dependable performance, even with hard drive track widths of only 75 nanometers.
- Seagate OptiCache™ technology boosts overall performance by as much as 45%.
- Free Seagate DiskWizard™ software allows you to install 3TB and 4TB hard drives in Windows, including XP, without UEFI BIOS.

### Best-Fit Applications

- Desktop or all-in-one PCs
- Home servers
- PC-based gaming systems
- Desktop RAID
- Direct-attached external storage devices (DAS)
- Network-attached storage devices (NAS)



## Desktop HDD



Specifications	4TB <sup>1</sup>	3TB <sup>1</sup>	2TB <sup>1</sup>	1TB <sup>1</sup>	500GB <sup>1</sup>	320GB <sup>1</sup>	250GB <sup>1</sup>
Model Number	ST4000DM000	ST3000DM001	ST2000DM001	ST1000DM003	ST500DM002 <sup>2</sup>	ST320DM000 <sup>2</sup>	ST250DM000 <sup>2</sup>
Model Name	Desktop HDD	formerly Barracuda®	formerly Barracuda	formerly Barracuda	formerly Barracuda	formerly Barracuda	formerly Barracuda
Interface Options	SATA 6Gb/s NCQ	SATA 6Gb/s NCQ	SATA 6Gb/s NCQ	SATA 6Gb/s NCQ	SATA 6Gb/s NCQ	SATA 6Gb/s NCQ	SATA 6Gb/s NCQ
<b>Performance</b>							
Cache, Multisegmented (MB)	64	64	64	64	16	16	16
SATA Transfer Rates Supported (Gb/s)	6.0/3.0/1.5	6.0/3.0/1.5	6.0/3.0/1.5	6.0/3.0/1.5	6.0/3.0/1.5	6.0/3.0/1.5	6.0/3.0/1.5
Seek Average, Read (ms)	<8.5	<8.5	<8.5	<8.5	<11	<11	<11
Seek Average, Write (ms)	<9.5	<9.5	<9.5	<9.5	<12	<12	<12
Average Data Rate, Read/Write (MB/s)	146	156	156	156	125	125	125
Max Sustained Data Rate, OD Read (MB/s)	180	210	210	210	144	144	144
<b>Configuration/Organization</b>							
Heads/Disks	8/4	6/3	6/3	2/1	2/1	2/1	1/1
Bytes per Sector	4096	4096	4096	4096	4096 or 512 <sup>2</sup>	4096 or 512 <sup>2</sup>	4096 or 512 <sup>2</sup>
<b>Voltage</b>							
Voltage Tolerance, Including Noise (5V)	±5%	±5%	±5%	±5%	±5%	±5%	±5%
Voltage Tolerance, Including Noise (12V)	±10%	+10%/–7.5%	+10%/–7.5%	+10%/–7.5%	+10%/–7.5%	+10%/–7.5%	+10%/–7.5%
<b>Reliability/Data Integrity</b>							
Contact Start/Stop Cycles	—	—	—	—	50,000	50,000	50,000
Load/Unload Cycles	300,000	300,000	300,000	300,000	—	—	—
Nonrecoverable Read Errors per Bits Read, Max	1 per 10E14	1 per 10E14	1 per 10E14	1 per 10E14	1 per 10E14	1 per 10E14	1 per 10E14
Power-On Hours	2400	2400	2400	2400	2400	2400	2400
<b>Power Management</b>							
Startup Power (A)	2.0	2.5	2.5	2.0	2.0	2.0	2.0
Operating Mode, Typical (W)	7.5	8.0	8.0	5.90	6.19	6.19	6.19
Idle Average (W)	5.0	5.8	5.8	4.0	4.60	4.60	4.60
Standby Mode (W)	0.75	0.75	0.75	0.63	0.79	0.79	0.79
Sleep Mode (W)	0.75	0.75	0.75	0.63	0.79	0.79	0.79
<b>Environmental</b>							
Temperature							
Operating (ambient min °C)	0	0	0	0	0	0	0
Operating (drive case max °C)	60	60	60	60	60	60	60
Nonoperating (ambient °C)	–40 to 70	–40 to 70	–40 to 70	–40 to 70	–40 to 70	–40 to 70	–40 to 70
Halogen Free	Yes	Yes	Yes	Yes	Yes	Yes	Yes
RoHS Compliance	Yes	Yes	Yes	Yes	Yes	Yes	Yes
<b>Physical</b>							
Height (mm/in)	26.11/1.028	26.11/1.028	26.11/1.028	20.17/0.7825	19.98/0.787	19.98/0.787	19.98/0.787
Width (mm/in)	101.6/4.0	101.6/4.0	101.6/4.0	101.6/4.0	101.6/4.0	101.6/4.0	101.6/4.0
Depth (mm/in)	146.99/5.787	146.99/5.787	146.99/5.787	146.99/5.787	146.99/5.787	146.99/5.787	146.99/5.787
Weight (g/lb)	610/1.345	626/1.38	626/1.38	400/0.88	415/0.92	415/0.92	415/0.92
Carton Unit Quantity	20	20	20	25	25	25	25
Cartons per Pallet	40	40	40	40	40	40	40
Cartons per Layer	8	8	8	8	8	8	8
<b>Special Features</b>							
Seagate OptiCache™ Technology	Yes	Yes	Yes	Yes	No	No	No
Seagate AcuTrac™ Technology	Yes	Yes	Yes	Yes	No	No	No

<sup>1</sup> One gigabyte, or GB, equals one billion bytes and one terabyte, or TB, equals one trillion bytes when referring to drive capacity.

<sup>2</sup> Seagate ships this drive in both 4K- and 512-byte sectors. SmartAlign technology is included on 4K sector drives. Both drives are functionally and physically equivalent.



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# EXHIBIT 9



# Desktop HDD

## Data Sheet

### The Power of One

- Seagate brings over 30 years of trusted performance and reliability to the new Seagate® Desktop HDDs—now available in capacities up to 4TB.
- Double your capacity and drive down costs with up to 1TB-per-disk hard drive technology.
- SATA 6Gb/s interface optimizes burst performance
- Seagate AcuTrac™ servo technology delivers dependable performance, even with hard drive track widths of only 75 nanometers.
- Seagate OptiCache™ technology boosts overall performance by as much as 45%.
- Free Seagate DiskWizard™ software allows you to install 3TB and 4TB hard drives in Windows, including XP, without UEFI BIOS.

### Best-Fit Applications

- Desktop or all-in-one PCs
- Home servers
- PC-based gaming systems
- Desktop RAID
- Direct-attached external storage devices (DAS)
- Network-attached storage devices (NAS)



## Desktop HDD



Specifications	4TB <sup>1</sup>	3TB <sup>1</sup>	2TB <sup>1</sup>	1TB <sup>1</sup>	500GB <sup>1</sup>	320GB <sup>1</sup>	250GB <sup>1</sup>
Model Number	ST4000DM000	ST3000DM001	ST2000DM001	ST1000DM003	ST500DM002 <sup>2</sup>	ST320DM000 <sup>2</sup>	ST250DM000 <sup>2</sup>
Model Name	Desktop HDD	formerly Barracuda®	formerly Barracuda	formerly Barracuda	formerly Barracuda	formerly Barracuda	formerly Barracuda
Interface Options	SATA 6Gb/s NCQ	SATA 6Gb/s NCQ	SATA 6Gb/s NCQ	SATA 6Gb/s NCQ	SATA 6Gb/s NCQ	SATA 6Gb/s NCQ	SATA 6Gb/s NCQ
<b>Performance</b>							
Cache, Multisegmented (MB)	64	64	64	64	16	16	16
SATA Transfer Rates Supported (Gb/s)	6.0/3.0/1.5	6.0/3.0/1.5	6.0/3.0/1.5	6.0/3.0/1.5	6.0/3.0/1.5	6.0/3.0/1.5	6.0/3.0/1.5
Seek Average, Read (ms)	<8.5	<8.5	<8.5	<8.5	<11	<11	<11
Seek Average, Write (ms)	<9.5	<9.5	<9.5	<9.5	<12	<12	<12
Average Data Rate, Read/Write (MB/s)	146	156	156	156	125	125	125
Max Sustained Data Rate, OD Read (MB/s)	180	210	210	210	144	144	144
<b>Configuration/Organization</b>							
Heads/Disks	8/4	6/3	6/3	2/1	2/1	2/1	1/1
Bytes per Sector	4096	4096	4096	4096	4096 or 512 <sup>2</sup>	4096 or 512 <sup>2</sup>	4096 or 512 <sup>2</sup>
<b>Voltage</b>							
Voltage Tolerance, Including Noise (5V)	±5%	±5%	±5%	±5%	±5%	±5%	±5%
Voltage Tolerance, Including Noise (12V)	±10%	+10%/–7.5%	+10%/–7.5%	+10%/–7.5%	+10%/–7.5%	+10%/–7.5%	+10%/–7.5%
<b>Reliability/Data Integrity</b>							
Contact Start/Stop Cycles	—	—	—	—	50,000	50,000	50,000
Load/Unload Cycles	300,000	300,000	300,000	300,000	—	—	—
Nonrecoverable Read Errors per Bits Read, Max	1 per 10E14	1 per 10E14	1 per 10E14	1 per 10E14	1 per 10E14	1 per 10E14	1 per 10E14
Power-On Hours	2400	2400	2400	2400	2400	2400	2400
<b>Power Management</b>							
Startup Power (A)	2.0	2.5	2.5	2.0	2.0	2.0	2.0
Operating Mode, Typical (W)	7.5	8.0	8.0	5.90	6.19	6.19	6.19
Idle Average (W)	5.0	5.8	5.8	4.0	4.60	4.60	4.60
Standby Mode (W)	0.75	0.75	0.75	0.63	0.79	0.79	0.79
Sleep Mode (W)	0.75	0.75	0.75	0.63	0.79	0.79	0.79
<b>Environmental</b>							
<b>Temperature</b>							
Operating (ambient min °C)	0	0	0	0	0	0	0
Operating (drive case max °C)	60	60	60	60	60	60	60
Nonoperating (ambient °C)	–40 to 70	–40 to 70	–40 to 70	–40 to 70	–40 to 70	–40 to 70	–40 to 70
Halogen Free	Yes	Yes	Yes	Yes	Yes	Yes	Yes
RoHS Compliance	Yes	Yes	Yes	Yes	Yes	Yes	Yes
<b>Physical</b>							
Height (mm/in)	26.11/1.028	26.11/1.028	26.11/1.028	20.17/0.7825	19.98/0.787	19.98/0.787	19.98/0.787
Width (mm/in)	101.6/4.0	101.6/4.0	101.6/4.0	101.6/4.0	101.6/4.0	101.6/4.0	101.6/4.0
Depth (mm/in)	146.99/5.787	146.99/5.787	146.99/5.787	146.99/5.787	146.99/5.787	146.99/5.787	146.99/5.787
Weight (g/lb)	610/1.345	626/1.38	626/1.38	400/0.88	415/0.92	415/0.92	415/0.92
Carton Unit Quantity	20	20	20	25	25	25	25
Cartons per Pallet	40	40	40	40	40	40	40
Cartons per Layer	8	8	8	8	8	8	8
<b>Special Features</b>							
Seagate OptiCache™ Technology	Yes	Yes	Yes	Yes	No	No	No
Seagate AcuTrac™ Technology	Yes	Yes	Yes	Yes	No	No	No

<sup>1</sup> One gigabyte, or GB, equals one billion bytes and one terabyte, or TB, equals one trillion bytes when referring to drive capacity.

<sup>2</sup> Seagate ships this drive in both 4K- and 512-byte sectors. SmartAlign technology is included on 4K sector drives. Both drives are functionally and physically equivalent.



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# **EXHIBIT 10**



# Desktop HDD

## Data Sheet

### The Power of One

- Seagate brings over 30 years of trusted performance and reliability to the new Seagate® Desktop HDDs—now available in capacities up to 4TB.
- Double your capacity and drive down costs with up to 1TB-per-disk hard drive technology.
- SATA 6Gb/s interface optimizes burst performance
- Seagate AcuTrac™ servo technology delivers dependable performance, even with hard drive track widths of only 75 nanometers.
- Seagate OptiCache™ technology boosts overall performance by as much as 45%.
- Free Seagate DiskWizard™ software allows you to install 3TB and 4TB hard drives in Windows, including XP, without UEFI BIOS.

### Best-Fit Applications

- Desktop or all-in-one PCs
- Home servers
- PC-based gaming systems
- Desktop RAID
- Direct-attached external storage devices (DAS)
- Network-attached storage devices (NAS)





## Desktop HDD



Specifications	4TB <sup>1</sup>	3TB <sup>1</sup>	2TB <sup>1</sup>	1TB <sup>1</sup>	500GB <sup>1</sup>	320GB <sup>1</sup>	250GB <sup>1</sup>
Model Number	ST4000DM000	ST3000DM001	ST2000DM001	ST1000DM003	ST500DM002 <sup>2</sup>	ST320DM000 <sup>2</sup>	ST250DM000 <sup>2</sup>
Model Name	Desktop HDD	formerly Barracuda®	formerly Barracuda	formerly Barracuda	formerly Barracuda	formerly Barracuda	formerly Barracuda
Interface Options	SATA 6Gb/s NCQ	SATA 6Gb/s NCQ	SATA 6Gb/s NCQ	SATA 6Gb/s NCQ	SATA 6Gb/s NCQ	SATA 6Gb/s NCQ	SATA 6Gb/s NCQ
<b>Performance</b>							
Cache, Multisegmented (MB)	64	64	64	64	16	16	16
SATA Transfer Rates Supported (Gb/s)	6.0/3.0/1.5	6.0/3.0/1.5	6.0/3.0/1.5	6.0/3.0/1.5	6.0/3.0/1.5	6.0/3.0/1.5	6.0/3.0/1.5
Seek Average, Read (ms)	<8.5	<8.5	<8.5	<8.5	<11	<11	<11
Seek Average, Write (ms)	<9.5	<9.5	<9.5	<9.5	<12	<12	<12
Average Data Rate, Read/Write (MB/s)	146	156	156	156	125	125	125
Max Sustained Data Rate, OD Read (MB/s)	180	210	210	210	144	144	144
<b>Configuration/Organization</b>							
Heads/Disks	8/4	6/3	6/3	2/1	2/1	2/1	1/1
Bytes per Sector	4096	4096	4096	4096	4096 or 512 <sup>2</sup>	4096 or 512 <sup>2</sup>	4096 or 512 <sup>2</sup>
<b>Voltage</b>							
Voltage Tolerance, Including Noise (5V)	±5%	±5%	±5%	±5%	±5%	±5%	±5%
Voltage Tolerance, Including Noise (12V)	±10%	+10%/–7.5%	+10%/–7.5%	+10%/–7.5%	+10%/–7.5%	+10%/–7.5%	+10%/–7.5%
<b>Reliability/Data Integrity</b>							
Contact Start/Stop Cycles	—	—	—	—	50,000	50,000	50,000
Load/Unload Cycles	300,000	300,000	300,000	300,000	—	—	—
Nonrecoverable Read Errors per Bits Read, Max	1 per 10E14	1 per 10E14	1 per 10E14	1 per 10E14	1 per 10E14	1 per 10E14	1 per 10E14
Power-On Hours	2400	2400	2400	2400	2400	2400	2400
<b>Power Management</b>							
Startup Power (A)	2.0	2.5	2.5	2.0	2.0	2.0	2.0
Operating Mode, Typical (W)	7.5	8.0	8.0	5.90	6.19	6.19	6.19
Idle Average (W)	5.0	5.8	5.8	4.0	4.60	4.60	4.60
Standby Mode (W)	0.75	0.75	0.75	0.63	0.79	0.79	0.79
Sleep Mode (W)	0.75	0.75	0.75	0.63	0.79	0.79	0.79
<b>Environmental</b>							
<b>Temperature</b>							
Operating (ambient min °C)	0	0	0	0	0	0	0
Operating (drive case max °C)	60	60	60	60	60	60	60
Nonoperating (ambient °C)	–40 to 70	–40 to 70	–40 to 70	–40 to 70	–40 to 70	–40 to 70	–40 to 70
Halogen Free	Yes	Yes	Yes	Yes	Yes	Yes	Yes
RoHS Compliance	Yes	Yes	Yes	Yes	Yes	Yes	Yes
<b>Physical</b>							
Height (mm/in)	26.11/1.028	26.11/1.028	26.11/1.028	20.17/0.7825	19.98/0.787	19.98/0.787	19.98/0.787
Width (mm/in)	101.6/4.0	101.6/4.0	101.6/4.0	101.6/4.0	101.6/4.0	101.6/4.0	101.6/4.0
Depth (mm/in)	146.99/5.787	146.99/5.787	146.99/5.787	146.99/5.787	146.99/5.787	146.99/5.787	146.99/5.787
Weight (g/lb)	610/1.345	626/1.38	626/1.38	400/0.88	415/0.92	415/0.92	415/0.92
Carton Unit Quantity	20	20	20	25	25	25	25
Cartons per Pallet	40	40	40	40	40	40	40
Cartons per Layer	8	8	8	8	8	8	8
<b>Special Features</b>							
Seagate OptiCache™ Technology	Yes	Yes	Yes	Yes	No	No	No
Seagate AcuTrac™ Technology	Yes	Yes	Yes	Yes	No	No	No

<sup>1</sup> One gigabyte, or GB, equals one billion bytes and one terabyte, or TB, equals one trillion bytes when referring to drive capacity.

<sup>2</sup> Seagate ships this drive in both 4K- and 512-byte sectors. SmartAlign technology is included on 4K sector drives. Both drives are functionally and physically equivalent.



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